NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

Prescribed Burning

(Acre)

Code 338

DEFINITION

Fire applied in a skillful manner under exacting weather conditions in a definite place to achieve specific results.

PURPOSES

(1) To improve ecosystem balance. (2) To control undesirable vegetation. (3) To stimulate grass seed production on areas managed for harvest. (4) To reduce excessive accumulation of plant residues. (5) To reduce hazard from wildfires by preventing buildup of excessive fuel. (6) To encourage desired changes in plant species composition or to maintain an existing successional stage. (7) To improve habitat for select wildlife species. (8) To improve forage quality and quantity for livestock. (9) To maintain an established plant community.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies only to the management of warm and cool season grasses and forbs used for pasture land, wildlife land, prairie restoration, and cropland utilized for hay or seed production or areas designated for long-term retirement. The technical guidelines set forth in this standard can be detrimental to forest land with existing stands of hardwood trees intended for timber production. In areas where established trees are present and the desire is to maintain them, this practice should not be used.

CRITERIA

A. Purpose for Burning

1. Improved forage and seed production and to improve wildlife habitat. Removal of excess litter buildup to improve distribution of grazing, control undesirable herbaceous vegetation (such as cool season grasses, and annual, perennial or broadleaf weeds), and reduce wildfire hazard. If feasible, where wildlife habitat is the primary concern, only about 1/3 of the area should be burned in any one year to retain some vegetation as nesting cover. In some cases, burning the entire area may be recommended or required to establish the desired stand.

a) Time of burning. Just as the desired species starts to break dormancy in the spring. A good rule of thumb is to burn when the desired species has one inch of new growth. Normal dates for burning in the southern half of the state are mid-March to early April; in the northern half of the state, late March to late April.

b) Timing of burn for warm season grass/forb stands may very depending upon landowner objective.

2. Wildlife Habitat Management of Wetlands. Fire may be used to thin out dense, persistent emergent wetland vegetation in order to create areas of open water for breeding pairs, feeding, brood cover and habitat for molting birds. Only

about 1/3 of the marsh or wetland complex should be burned in a single year to retain some vegetation as habitat for birds that nest over water and as a winter cover for other wildlife such as deer and pheasants.

Burn when the wetland is dry or nearly dry. Any vegetation that is moist or over open water will not usually burn.

Normal dates for burning wetlands are from fall through late winter. Burning over ice with no snow pack on the wetland is effective. A snow pack will prevent burning.

Firebreaks are necessary to prevent burning more than the intended area.

3. Management of Woody (brush) Species. Burn to reduce invasion of woody vegetation. For controlling woody species such as: boxelder, mulberry and silver maple, burn shortly after bud break and well before full leaf stage. For controlling coniferous species burn just after the largest species starts to grow.

4. Water Quality: Prescribed burning helps promote a vigorous, well adapted plant community which disrupts disease cycles and insect reproduction, decreasing the need for pesticides.

5. Water Quantity: The short-term effect of prescribed burning due to residue removal may increase runoff and decrease infiltration of water. Long term benefits due to a more vigorous plant community impact water quality as follows:

a) Increase water infiltration and decrease runoff with a subsequent increase in groundwater recharge where geologic conditions permit.

b) Decrease moisture evaporation from soil because of lower ground temperature and surface cover.

c) Increase water-holding capacity of the soil due to higher soil organic matter and better soil tilth.

B. Conditions for Prescribed Burning

1. Burn when there is sufficient steady wind velocity to carry the fire. High relative humidity and low temperatures will often reduce fire intensity and effectiveness. Topography (i.e. steep slopes, southern aspect, etc.) also influences the fire spread and intensity.

a) Burns should be accomplished when the mulch layer and soil surface are slightly moist but dry enough to carry a fire. Generally this is 1-3 days after a rain on grassland. The relative humidity should be between 30-60 percent.

b) Do not burn when wind velocities area greater than 15 mph or when winds are gusty or shifting more than 45 degrees in direction. Eight to ten mph winds are preferred where brush management is the objective. Extra caution for fire control will be necessary when the humidity is low and temperatures are high.

2. Prior to the burn, establish firebreaks separating the area to be burned from those needing protection. See Firebreaks Standards and Specifications 394. A firebreak will be constructed according to specifications as stated in the burn plan. A firebreak will be no less than 3 times the height of the standing vegetation. A firebreak is designed to contain the backfire and flankfire. Allow these fires to burn, widening the firebreak, to safely contain the headfire which burns with much more intensity. Reducing the fuel height to about 1 foot next to the fireline, will greatly reduce the intensity of the fire at the fire line. Remove snags and brush piles near the firebreak to help prevent fires from escaping or spotting over.

3. Grazing should be reduced the year prior to a scheduled pasture burn if grazing is reducing the fuels needed for an effective fire.

C. Definition of Terms

1. Types of Fire. Fires can be classified into three major types:

a) Headfire. A fire, which is set to spread with the wind and is usually used with a backfire.

b) Backfire. A fire set to spread against the wind to remove flammable material and thus help to stop or control the headfire. Backfires may be used for the entire burn in some circumstances.

c) Flankfire. The sides of a fire between the head and backfire.

2. Firebreaks. Firebreaks are used to help contain the fire within the planned burn area.

a) Cleared firebreaks. Cleared firebreaks are generally of two types: those maintained as bare soil and those seeded to cool season grasses and/or legumes.

(1.) Bare soil lines are created by plowing or disking the boundary. They shall be used only where erosion is not a problem. A cover crop (wheat or rye) can be seeded on bare soil lines constructed in the fall.

(2.) Greenlines are maintained by mowing or grazing to keep fuel from accumulating and to maintain a short thick stand of cool season grass.

b) Burned firebreaks. Burned firebreaks are established along the perimeter of the burn area, taking advantage of natural barriers, mowed and raked wet lines. These boundaries may be burned in the evenings when the fire is more easily controlled. Pre-burned firebreaks shall be checked before the headfire is started to insure that there is no unburned fuel still present.

D. General Procedure.

Whether to use a head fire or backfire is determined by the objective to be accomplished and is affected by on site weather conditions at the time of the burn. A head fire will produce a fast moving fire, which carries rapidly over the surface. Head fires are best for control of weeds and brush and removal of excess litter. A backfire is a slow moving, hot fire burning into the wind consuming all combustible materials, except when the mulch layer is wet. Backfires are best for firebreaks. Using a combination of the head and backfire in a ring configuration is very effective for most prescribed burns.

E. Management After Burning.

Protect from grazing until there is 10 to 12 inches of new growth.

Information Required for Practice Documentation in the Case File

1. Location identification (Field # or CTU #).
2. Copy of prescribed burn plan.

F. Caution

NRCS employees may only assist landowners with conservation planning to include prescribed fire as a management alternative in an approved conservation plan. NRCS employees are not authorized to write burn plans or assist with igniting or spreading of fire for private landowners. Only employees with appropriate training as detailed in GM Part 480, Indiana Policy on Prescribed Burning may discuss prescribed fire, or write a conservation plan containing prescribed fire as a management alternative. Further information on policy may be found in GM Part 480, Indiana Policy on Prescribed Burning.

CONSIDERATIONS

Planning is essential to minimize risk and to insure maximum benefits for the Conservation Management System from the prescribed burn.

The following items will be considered during the planning process to insure a successful burn:

1. **Only trained and qualified employees are authorized to provide conservation planning assistance using prescribed fire as an alternative.** Source - GM Part 480, Indiana Policy on Prescribed Burning, regarding NRCS technical assistance to landowners on prescribed burning activities.

2. Landusers will be instructed to burn in accordance with federal, state and local regulations.

3. Burn only when a specific management objective is to be met.

4. Landusers must fully understand they are responsible for confining prescribed burns to their lands and are liable for damages and costs to others should the fire escape from the designated area. **In each prescribed burn the landowner must be informed in writing that he/she is liable for damages if the fire escapes or smoke damage occurs.**

5. Prior to starting a fire the landuser should have completed all of the following:

a) Inform the local law enforcement agencies, fire chief, rural fire department or fire district and board of health of planned burns. (Refer to planning worksheet)

b) Have all necessary tools, equipment, and adequately trained and experienced personnel on site to properly conduct the burn.

c) Notify all adjoining and potentially affected landowners or landusers.

d) Notify the sheriff or responsible authorities when planning to burn near public roads.

e) Insure that all persons involved in the burning procedure fully understand the burning plan. This should include the when, where, and how the burn is to be accomplished, with special emphasis on communication details.

f) Obtain the latest site specific "Weather Forecast".

g) Defer burning in conditions with high fire danger levels. Burn only within the prescription set forth in an approved prescribed burn plan.

6. The landowner is liable for damages resulting from the fire and the cost of suppression by others, should the fire escape from the designated area.

7. The burn crew should wear clothing of natural materials (i.e. cotton, wool, leather, etc.). Cap, gloves and high top leather boots are needed. Note: fire resistant clothing is preferred.

8. Burn only when wind will not carry smoke into sensitive areas. Examples of these areas include highways, power lines, health care facilities, etc.

9. Each person should have a means to start a fire and should be instructed in emergency procedures if trapped by the fire.

10. Participants should constantly evaluate preplanned escape routes, especially if burn is conducted under low light conditions.

PLANS AND SPECIFICATIONS

Specifications for establishment and operation of this practice shall be prepared for each field or treatment unit according to the Criteria, Considerations, and Operation and Maintenance described in this standard. Specifications shall be recorded using approved specification sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

No operation and maintenance requirements have been identified for this practice.